Message

From: Fitz, Nancy [Fitz.Nancy@epa.gov]
Sent: 1/4/2021 7:14:55 PM
To: Leifer, Kerry [Leifer.Kerry@epa.gov]; Goodis, Michael [Goodis.Michael@epa.gov]; Aubee, Catherine [Aubee.Catherine@epa.gov]
Subject: RE: storage stability question re: PFAS
Attachments: ACRC - Fluorinated HDPE Letter - Rev 2-22-2019.pdf

Thanks, Mike. I searched my container-related email and document folders to see if I could find any additional information about fluorinating HDPE containers. I struck out but found the following information with a Google search. It's not very specific, although I suspect that the Ag Container Recycling Council (ACRC) might be a good resource about which solvents/agricultural pesticides are distributed in fluorinated HDPE containers. Let me know if you want me to follow up with ACRC.

Nancy

https://www.mjspackaging.com/blog/what-are-fluorinated-bottles/
Additionally there are five different levels of fluorination, each one being right for some products. Usually it is only the outer surface that is exposed to fluorination, but sometimes fluorination is applied to both outer and inner surfaces, enhancing the barrier properties. Some of the chemicals that require fluorinated bottles include:
· Petroleum
· Heptane
· Hexane
· Essential oils
· Insecticides
· Pentane
· Cyclohexane
· Cleaners
· Degreasers
· Carbon Tetrachloride
· Toluene
· Trimethylbenzene
· Trichloroethylene
https://www.fishersci.com/us/en/browse/90094103/fluorinated-bottles:
Chemicals that may require fluorinated bottles include: heptane, hexane, pentane, carbon tetrachloride and trimethylbenzene, among others.
https://www.qorpak.com/pages/fluorination:
There are a variety of chemicals that prefer to be packaged in fluorinated containers. The following table outlines some of them.

Acetone
Auto Additives
Charcoal Lighter
Cleaners
Degreasers
d-Limonene
Electronics Chemicals
Essential Oils
Flavors
Fragrances
Gasoline
Insecticides
Kerosene
Lubricants
Plant growth products
Surfactants
Solvents
Terpenes
Trichloroethylene
Toluene
Wax or polish
Wood Preservatives
Herbicides
Paint Thinners

ACRC Letter dated February 22, 2019 (See attached):
Fluorination is used to prevent numerous ingredients found in product formulations from permeating through the container walls, thereby maintaining product efficacy and increasing the shelf life. It is estimated that roughly 20-30% of all rigid ag chem packaging in North America sold into the crop protection market are produced with fluorinated HDPE.

From: Leifer, Kerry <Leifer.Kerry@epa.gov>
Sent: Monday, January 04, 2021 1:30 PM
To: Goodis, Michael <Goodis.Michael@epa.gov>; Aubee, Catherine <Aubee.Catherine@epa.gov>; Fitz, Nancy <Fitz.Nancy@epa.gov>
Subject: RE: storage stability question re: PFAS

Thanks Mike, that is helpful in understanding the issue.

Kerry Leifer, Chief
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From: Goodis, Michael
Sent: Monday, January 04, 2021 1:24 PM
To: Leifer, Kerry <Leifer.Kerry@epa.gov>; Aubee, Catherine <Aubee.Catherine@epa.gov>; Fitz, Nancy <Fitz.Nancy@epa.gov>
Subject: RE: storage stability question re: PFAS

The issue that seems to be developing is that HDPE– High Density Poly Ethylene containers are being treated to fluorine gas that coats and strengthens them.
This process is creating a situation where PFAS can be leached into the pesticide product stored in the treated container depending on the ingredients in the product.
Any information that may be in the submitted data that can help point us to similar conditions would be helpful because this may end up being a broader issue about the containers.

Michael L. Goodis, P.E.
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From: Leifer, Kerry <Leifer.Kerry@epa.gov>
Sent: Monday, January 04, 2021 12:08 PM
To: Aubee, Catherine <Aubee.Catherine@epa.gov>; Fitz, Nancy <Fitz.Nancy@epa.gov>

Cc: Goodis, Michael <Goodis.Michael@epa.gov>
Subject: RE: storage stability question re: PFAS

In answer to the first question, other than the reviews themselves we don't extract any information from the storage stability/corrosion characteristics studies. Regarding any PFAS-type coating, I am not aware that we have seen such (typically such coatings are used on paper and pesticide containers typically are not of this type)—I will check to see if I can get more information on that.

In answer to the second question, yes the SS/CC studies are in Documentum.

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From: Aubee, Catherine
Sent: Monday, January 04, 2021 11:59 AM
To: Leifer, Kerry <Leifer.Kerry@epa.gov>; Fitz, Nancy <Fitz.Nancy@epa.gov>
Cc: Goodis, Michael <Goodis.Michael@epa.gov>
Subject: RE: storage stability question re: PFAS

Thanks! I'm aware that many of these SS/CC data have been submitted but not reviewed. For those that have, is it accurate to say that we do not typically extract this type of information? Are the studies generally available in Documentum?

Best,
Catherine

From: Leifer, Kerry <Leifer.Kerry@epa.gov>
Sent: Monday, January 04, 2021 11:48 AM
To: Fitz, Nancy <Fitz.Nancy@epa.gov>; Aubee, Catherine <Aubee.Catherine@epa.gov>
Cc: Goodis, Michael <Goodis.Michael@epa.gov>
Subject: RE: storage stability question re: PFAS

The storage stability/corrosion characteristics data requirements includes the identification of the container type, including any coating or liner.

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